

REMARKS

Claims 3-5, 7-41 and 42-45 have been canceled. Claims 1, 2, 6, 42 and 46 are presented without further amendment.

The Office Action states:

Claims 1 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Scofield (US 6,853,732 B2).

With respect to claim 1, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first directional local audio device (fig.3 #58,60) comprising at least two radiating elements radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces (fig.3), close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said listening spaces, distant from said first of said listening spaces (col.4 ln.58-63), for radiating sound waves corresponding to said first of said channels (col.4 ln.21- 25). It is implied that destructive interference resultant from two separate sound sources would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others.

With respect to claim 42, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first local audio device (fig.3 #58,60) comprising at least two radiating elements radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces, close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said first of said listening spaces, distant from said first of said listening spaces (col.4 ln.58-63), for radiating sound waves corresponding to said first of said channels (col.4 ln.21- 25). It is implied that destructive interference resultant from two separate sound sources would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others.
pp. 2-3

This ground of rejection is respectfully traversed. We rely on the authorities set forth on

pages 6 and 7 of the response filed 10 September 2009.

In *Ex parte Aylward*, (BPA&I, Appeal No. 2007-2368 December 4, 2007) the Board said in reversing a final rejection,

“Both anticipation under §102 and obviousness under §103 are two-step inquiries. The first step in both analyses is a proper construction of the claims . . . The second step in the analysis requires a comparison of the properly constructed claims to the prior art”. *Medichem, S.A. v. Rolabo, SL.*, 353 F. 3d 928, 933 (Fed. Cir. 2003) (internal citations omitted):

A. CLAIM CONSTRUCTION

“The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art.” *In re Lowry* 32 F. 3d 1579, 1582 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F. 2d. 1381, 1385 (Fed. Cir. 1983). Slip Op. Pp. 7-8.

* * *

“In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness.” *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citing *in re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). “A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” *In re Bell*, 991 F.2d 781,783 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F. 2d 1048, 1051 (CCPA 1976)).

In *Ex parte Hamilton* (BPA&I Appeal No. 2007-3091, March 11, 2008) in reversing a final rejection the Board said:

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See *In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991), and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

The Examiner can satisfy this burden by showing some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Slip Op. Pp. 5-6.

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the

art.” *In re Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).
Phillips v. AWH Corp., 76 U.S.P.Q. 1321, 1329 (Fed. Cir. 2005) (en banc).

All the claims recite a first directional local audio device comprising at least two radiating elements radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces, close to a head of the listener, for radiating first sound waves corresponding to a first of said channels.

Interpreting this claim language in light of the specification as it would be interpreted by one of ordinary skill in the art requires that the at least two radiating elements effectively radiate directionally for radiating first soundwaves corresponding to a first of the channels, such as the left channel. In other words the at least two radiating elements radiate sound waves corresponding to one of the channels to provide directional radiation. Thus in the claimed system each of the at least two radiating elements of a left array receives a left channel signal, but processed differently to radiate the left channel directionally (and similarly for the right channel array).

This property is explained in paragraph 59 of the specification which reads as follows:

[0059] In one embodiment of FIG. 4A, H.sub.2(s) and H.sub.4(s) represent a unity function, and H.sub.1(s) and H.sub.3(s) represent a time delay, a phase shift, or both, and a polarity inversion so that driver 1214L and 1416L radiate -G.sub.1LS.DELTA.T+RS, and drivers 1214R and 1416R radiate LS-G.sub.3RS.DELTA.T, where .DELTA.T represents a time shift and G.sub.n represents a gain associated with the transfer function having the same subscript, or so that drivers 1214L and 1416L radiate -G.sub.1LS.DELTA..phi.+RS, and drivers 1214R and 1416R radiate LS-G.sub.3RS.DELTA..phi. where .DELTA..phi. represents a phase, so that the LS radiation from directional arrays 1214 and 1416 destructively interferes at the listeners' right ears, and so that that the RS radiation from directional arrays 1214 and 1416 destructively interferes at the listeners' left ears. In another embodiment, H.sub.2(s) and H.sub.4(s) represent a unity function and H.sub.1(s) and H.sub.3(s) represent a signal phase shift, a gain, and a low pass filter. The phase shift can cause the LS radiation from drivers 1214 and 1416 to destructively interfere at the listeners' right ears, and can further cause the RS radiation from drivers 1214 and 1416 to destructively interfere at the listeners' left ears. The gain can facilitate the attaining of an appropriate amount of radiation attenuation. The low pass filter can adjust for the natural directivity of acoustic drivers at wavelengths comparable to and less than the diameter of the acoustic driver. The low pass filter may be implemented as a discrete device or

may be incorporated into the circuitry implementing the transfer function.

The specification includes additional material. ¶ 28 provides a definition of what is meant by a directional acoustic device. ¶¶ 29-30 describe interference type direction devices. An interference type device has at least two radiating elements.

Having properly construed these limitations in the rejected claims as they would be construed by one of ordinary skill in the art from the specification, it is clear that the reference does not anticipate these rejected claims. The reference discloses a single radiating element 58 that radiates left channel signal and a single radiating element 60 that radiates a right channel signal. Accordingly, withdrawal of the rejection of claims 1 and 42 as anticipated by the reference is respectfully requested. If this ground of rejection is repeated, the Examiner is respectfully requested to quote verbatim the language in the reference regarded as corresponding to the first directional local audio device as set forth in the third subparagraph of claims 1 and 42.

The Office Action states:

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Iwahara (US 4,199,658).

With respect to claim 2, Scofield discloses an audio system in accordance with claim 1, wherein said directional audio devices comprise a plurality of acoustic drivers (fig.3 #58,60), however does not disclose expressly wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space.

Iwahara discloses an audio system wherein a plurality of acoustic drivers (fig.1 #I-4) are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space (col.1 ln.37-68, col.2 ln.1-2).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the crosstalk cancellation system of Iwahara in the invention of Scofield. The motivation for doing so would have been to cancel inter-aural interferences between the right and left ears of a listener.

Claims 6 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Fabry (US 7,164,773 B2).

With respect to claim 6, Scofield discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said listening area

comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

With respect to claim 46, Scofield discloses an audio system in accordance with claim 42, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger. pp. 4-6

This ground of rejection is respectfully traversed.

In KSR Int'l Co. v. Teleflex Inc., 82 U.S.P.Q. 2d 1385, 1396 (U.S. 2007), after stating the steps "in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent in issue", the Court said, "To facilitate review this analysis should be made explicit." See *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006) ("[R]ejections on obvious grounds cannot be sustained by mere conclusory statements, instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

"A fact finder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U.S., at 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 [141 USPQ 549] (CA6 1964))). *Id.* 1397.

Claim 2 is dependent upon any includes all the limitations of claim 1. We have shown above that the primary reference fails to anticipate claim 1. Therefore, it is impossible to

combine the primary and secondary references to meet the limitations of claim 2.

"Moreover, we observe that even if these references were combined in the manner proposed by the examiner, that which is set forth in appellant's claims . . . would not result." *Ex parte Bogar*, slip op. p.7 (BPA&I Appeal No. 87-2462, October 27, 1989). "Even if we were to agree with the examiner that it would have been obvious to combine the reference teachings in the manner proposed, the resulting package still would not comprise zipper closure material that terminates short of the end of the one edge of the product containing area, as now claimed." *Ex parte Schwarz*, slip op. p.5 (BPA&I Appeal No. 92-2629 October 28, 1992). "Although we find nothing before us indicating why it would be desired to combine the references in the manner urged by the examiner, it is clear to us that such a modification by itself would not result in that which is set forth in the claims." *Ex Parte Kusko*, 215 U.S.P.Q. 972, 974 (BPA&I 1981).

That it is impossible to combine the references to meet the limitations of claim 2 is reason enough for withdrawing the rejection of it.

In view of the foregoing authorities, authorities previously set forth, reasoning and the inability of the prior art, alone or in combination, to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, all the claims are submitted to be in condition for allowance, and notice thereof is respectfully requested.

"The days of an adversarial relationship with patent applicants are over, Patent and Trademark Office Director David J. Kappos Nov. 19 told an audience of academics, practitioners, and a few of his employees. In his first few months in office, Kappos said that [he] has repeatedly instructed Examiners to help applicants find patentable subject matter." 79 PTCJ 101 (November 27, 2009). While we submit the limited number of the active claims properly define patentable subject matter, we are receptive to help from the Examiner in defining patentable subject matter in this application.

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